REMARKS

Reconsideration and allowance of the subject application are respectfully requested. Upon entry of this Amendment, claims 1 and 3-5 are pending in the application. In response to the Office Action (Paper No. 8), Applicant respectfully submits that the pending claims define patentable subject matter.

Claims 1, 3 and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's admitted prior art in view of Yamamoto et al. (U.S. Patent No. 5,121,017; hereafter "Yamamoto"). Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's admitted prior art in view of Yamamoto and Ohi et al. (U.S. Patent No. 5,798,589; hereafter "Ohi"). Applicant respectfully submits that the claimed invention would not have been rendered obvious in view of the combined references.

Amended independent claims 1 and 5 is directed to a motor comprising "a rotary shaft ... including a narrow portion provided on an output side of said rotary shaft" and "a resin washer fitted around said narrow portion of said rotary shaft." Amended claims 1 and 5 further recites "the opposite side bearing supported by the opposite side bearing holding portion is configured to be movable in an axial direction thereof while being urged toward the output side so that the rotor and the rotary shaft are urged toward the output side and the resin washer is brought into contact with the output side bearing to thereby be positioned in the axial direction thereof." Applicant respectfully submits that the combined references do not teach or suggest these features of the claimed invention.

As shown in Figure 1 and discussed on pages 12 and 13 of the present application, the width or diameter of the rotary shaft is decreased at a narrow portion 11c between the portion of

the rotary shaft 11 disposed inside the magnet portion 1a of the rotor 1 and the portion of the rotary shaft 11 where the lead screw is formed. This narrow portion 11c of the rotary shaft 11 is accommodated in the resin C-shaped washer 11b and enables the resin C-shaped washer 11b to hold the rotary shaft 11 and rotor 1 in place when the rotary shaft 11 and the rotor 1 are urged by the urging force of the urging member (spring) 7 in the axial direction shown by arrow X (i.e., the resin C-shaped washer 11b fitted around the narrow portion 11c of the rotary shaft 11 of the rotor 1 is pressed against the end surface of the output portion side bearing 41).

By forming the narrow portion 11c on the rotary shaft 11, the resin washer 11b is prevented from being brought into direct pressing contact with the rotor magnet 1a due to the urging force of the urging member 7 on the rotary shaft 11. As a result, an undesirable braking force is prevented from being generated by the friction due contact between the resin washer 11b and the rotor magnet 1a with a larger contact diameter. Further, without the narrow portion 11c, the rotary magnet 1a would be axially shifted by pressing the resin washer 11b as the rotary shaft 11 is urged.

On the other hand, neither prior art Figure 2 nor Yamamoto teaches or suggests a rotary shaft having a narrow portion provided on an output side of the rotary shaft, and a resin washer fitted around the narrow portion of the rotary shaft. Rather, prior art Figure 2 shows that the width or diameter of the rotary shaft increases on an output side of the rotary shaft. Further, Yamamoto teaches that the width or diameter of the rotary shaft 30 remains the same throughout its length. Similarly, Applicant respectfully submits that Ohi does not teach or suggest these features of the claims.

Accordingly, Applicant respectfully submits that the combined references do not teach or suggest the claimed resin washer and narrow portion of the rotary shaft of claims 1 and 5.

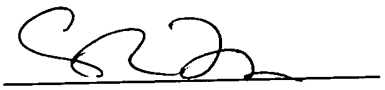
Further, independent claims 1 and 5 require "said output side bearing, the coil bobbin and the opposite side bearing holding portion are made of a resin." The Examiner appears to be relying on Yamamoto for teaching the claimed output side bearing via the upper bearing 25 shown in Figure 1. However, Applicant is unable to find any indication in Yamamoto that the upper bearing 25 is made of resin. That is, although Yamamoto teaches that "[t]he upper bearing supporting member 24b is made of hardened resin such as PBT (polybutylene terephthalate), and ...[the] upper bearing 25 is fixedly secured on the upper bearing supporting member 24b at its center portion" (column 5, lines 5-18), the reference does not appear to disclose the material or structure of the upper bearing 25.

In view of the above, Applicant respectfully submits that independent claims 1 and 5, as well as dependent claims 3 and 4, should be allowable because the applied references, alone or in combination, do not teach or suggest all of the features of the claims.

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Christopher R. Lipp
Registration No. 41,157

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373
PATENT TRADEMARK OFFICE

Date: April 9, 2003

Attorney Docket No.: Q67755

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Twice Amended) A motor comprising:

a rotor;

a rotary shaft inserted and fixed into said rotor, said rotary shaft including a narrow portion provided on an output side of said rotary shaft;

a stator opposed to said rotor, wherein the stator comprises stacked stator cores, each stator core comprising an inner yoke and an outer yoke, and the inner and outer yokes being integrated by a coil bobbin;

an output side bearing provided on [an] the output side of said rotary shaft, and supporting a portion near an output portion of said rotary shaft; [and]

an opposite side bearing holding portion for holding an opposite side bearing supporting an opposite side to the output side of said rotary shaft; and

a resin washer fitted around said narrow portion of said rotary shaft;

wherein said stator cores are integrally formed with the coil bobbin by insert molding, and said output side bearing, the coil bobbin and the opposite side bearing holding portion are made of resin and integrally formed with each other, whereby the output side bearing and the opposite side bearing holding portion are integrated with the stator cores;

wherein a lead screw is formed at the output portion and a rotation of said lead screw directly affects an operated member; and

wherein the opposite side bearing supported by the opposite side bearing holding portion is configured to be movable in an axial direction thereof while being urged toward the output side so that the rotor [is] and the rotary shaft are urged toward the output side and the resin washer is brought into contact with the output side bearing to thereby be positioned in the axial direction thereof.

5. (Twice Amended) A motor comprising:

a rotor;

a rotary shaft inserted and fixed into said rotor, said rotary shaft including a narrow portion provided on an output side of said rotary shaft;

a stator opposed to said rotor, wherein the stator comprises stacked stator cores, each stator core comprising an inner yoke and an outer yoke, and the inner and outer yokes being integrated by a coil bobbin; [and]

an output side bearing provided on [an] the output side of said rotary shaft, and supporting a portion near an output portion; and

a resin washer fitted around said narrow portion of said rotary shaft;

wherein said stator cores are integrally formed with the coil bobbin by insert molding, and said output side bearing, the coil bobbin and the opposite side bearing holding portion are made of a resin, and integrally formed with each other, whereby the output side bearing and the opposite side bearing holding portion are integrated with the stator cores; and

wherein a lead screw is formed on said rotary shaft from said output portion of said rotary shaft to a portion which is opposed to an inner surface of said output side bearing; and

wherein lubricant is filled in a gap formed between said lead screw and said output side bearing; and

wherein the opposite side bearing supported by the opposite side bearing holding portion is configured to be movable in an axial direction thereof while being urged toward the output side so that the rotor [is] and the rotary shaft are urged toward the output side and the resin washer is brought into contact with the output side bearing to thereby be positioned in the axial direction thereof.